

DoD Global Influenza Surveillance Program: *Influenza Surveillance at AFIOH*

Overall Lab Surveillance

Total Specimens Collected

- Collected in Week 06: 70
- Season Total: 1,521

Total Influenza Isolates

Identified in Wk 06; **Cumulative**

- Influenza A: 16 ; 168
- Influenza B: 3 ; 32

Total Influenza Subtyped

Identified in Wk 06; **Cumulative**

- A/H1N1: 0 ; 9
- A/H3N2: 0 ; 100
- B/HongKong: 0 ; 18
- B/Shanghai: 0 ; 3

Sentinel Site Lab Surveillance

Sentinel Specimens Collected

- Collected in Week 06: 47
- Season Total: 957

Sentinel Influenza Isolates

Identified in Wk 06; **Cumulative**

- Influenza A: 13 ; 120
- Influenza B: 3 ; 10

Sentinel Influenza Subtyped

Identified in Wk 06; **Cumulative**

- A/H1N1: 0 ; 8
- A/H3N2: 0 ; 71
- B/Hong Kong: 0 ; 4
- B/Shanghai: 0 ; 1

Overseas Research Lab Surveillance

Research Specimens Collected

- Collected in Week 06: 102
- Season Total: 408

Research Influenza Isolates

Identified in Wk 06; **Cumulative**

- Influenza A: 0 ; 7
- Influenza B: 0 ; 20

Research Influenza Subtyped

Identified in Wk 06; **Cumulative**

- A/H1N1: 0 ; 1
- A/H3N2: 0 ; 5
- B/Hong Kong: 0 ; 13
- B/Shanghai: 0 ; 1

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Week 06

05-11 February 2006

Current WHO Phase of Pandemic Alert: **PHASE 3**

***Phase 3** = a new influenza virus subtype is causing disease in humans, but is not yet spreading efficiently and sustainably among humans. *The designation of phases, including decisions on when to move from one phase to another, is made by the Director-General of WHO.* Source: [WHO](#)

Influenza (02 Oct - Present)

200 influenza isolates

168 Influenza A; 32 Influenza B

14% of completed specimens were positive for an influenza virus: 12% influenza A; 2% influenza B.

Influenza A

A (H1N1): 9

A (H3N2): 100

Un-subtyped: 59

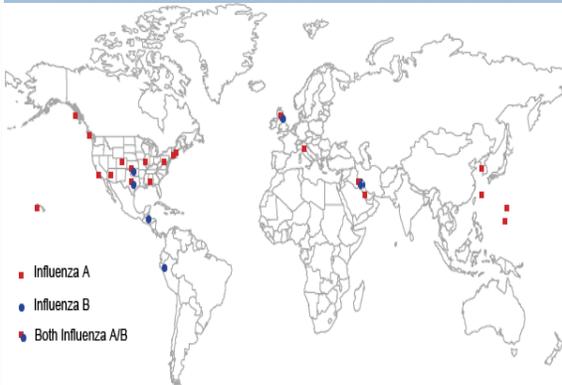
Influenza B

B (Hong Kong): 18

B (Shanghai): 3

Un-subtyped: 11

Locations of identified influenza viruses



Locations of identified influenza subtypes



Vaccination Status

95% of the Active Duty Air Force, 88% of Air National Guard, and 78% of Air Force Reserve are currently vaccinated (as of 13 Feb 06). (Data gathered by MILVAX)

Update: Human Avian Influenza (H5N1)

- China reported 12th lab-confirmed case of human H5N1 in 20-yr old female farmer in south central province of Hunan. Patient developed symptoms on 27 Jan and died on 4 Feb. See [WHO update](#).
- Indonesia reported 24th and 25th lab-confirmed cases (both were fatal). See [WHO update](#).
- See pg 6 for list of cumulative cases from WHO. Also, see [WHO's situational update](#) for a detailed update.

Influenza Outbreaks / News

At this time, AFIOH has not been notified of influenza outbreaks at any of the MTFs.

AFIOH Report Overview

This report summarizes the status of all respiratory viral cultures processed at the AFIOH laboratory, which includes specimens collected from DoD beneficiaries at 43 tri-service sentinel sites and non-sentinel sites, as well as from foreign nationals through DoD overseas research laboratories (Armed Forces Institute of Medical Sciences [AFRIMS], the Naval Medical Research Center Detachment [NMRC-D], and the US Army Center for Health Promotion and Preventive Medicine West [CHPPM-W]).

Please visit our [website](#) to review the "**Sentinel Site Surveillance Report**" for detailed information on our sentinel site program and specimens submitted by our sentinel sites.

Overall Laboratory Surveillance

MAP: Geographic coverage of DoD Influenza Surveillance*

Week 06 overview

- Specimens “collected” during Week 06. At this time, 23 sites (10 sentinel and 7 non-sentinel, and 1 overseas research lab) have shipped 70 specimens that were collected during Week 06. See map to right. Of these, 27% (n=19) have a completed result (16 influenza A and 3 influenza B).

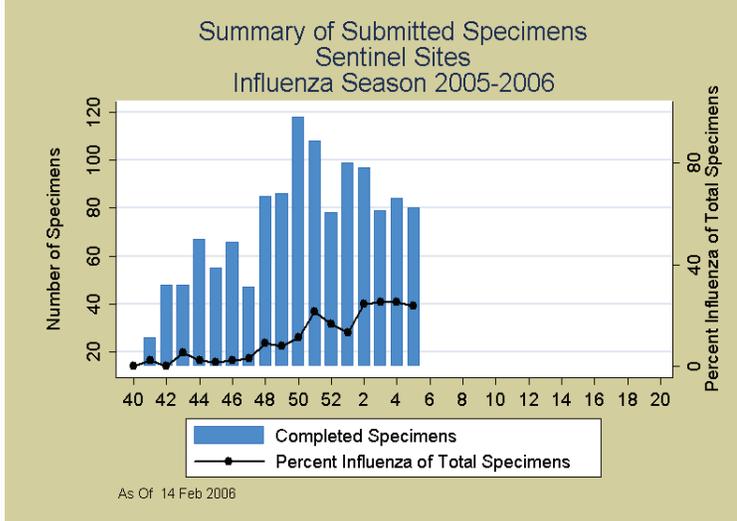


* As determined from specimen submissions. Even though an entire location is highlighted, surveillance may be limited in scope

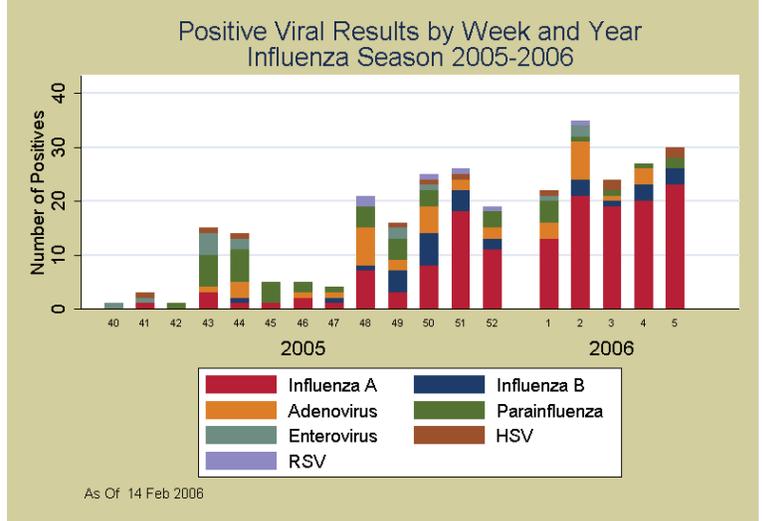
Season overview

Since 02 October 2005, 1,521 specimens were received by the AFIOH laboratory and 79% (n=1,293) have a completed result. Of these, 13% (n=200) were positive for an influenza virus (Graph 1): 11% influenza A; 2% influenza B. Furthermore, 3% (n=43) were positive for parainfluenza, 2% (n=38) were adenovirus, 1% (n=14) were enterovirus, 0.7% (n=11) were HSV, and 0.4% (n=6) were RSV (Graph 2).

Graph 1



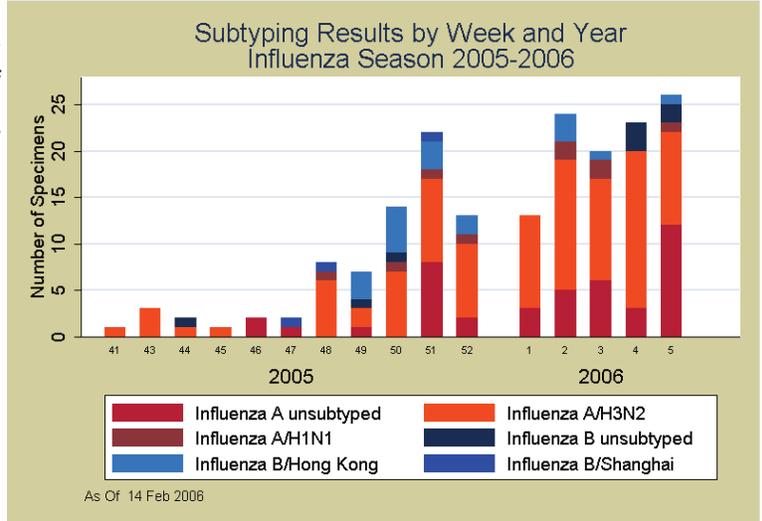
Graph 2



Influenza Subtype and Sequence overview

All influenza isolates are typed and the AFIOH laboratory plans to subtype all OCONUS isolates and a portion of CONUS isolates. Of the 200 influenza isolates, 65% (n=130) have been subtyped: 100 influenza A/H3N2, 9 influenza A/H1N1, 18 influenza B/Hong Kong, and 3 influenza B/Shanghai (Graph 3).

Graph 3



Five (56%) H1N1 sub-typed isolates have been sequenced and there are a few notable amino acid changes from the influenza A/New Caledonia vaccine strain. Additionally, several H3N2 sub-typed isolates have been sequenced and appear to closely match the vaccine strain.

Vaccination status. Vaccination status has been identified on 30% (n=59) of the influenza-positive patients. This information was obtained from the influenza surveillance questionnaires completed by sentinel sites. 36% (n=21) were vaccinated > 2wks prior to their illness. Eight of the specimens collected from the vaccinated patients have been sub-typed, 6 were identified as H3N2 and 2 were H1N1.

Hospitalized/Quarters status. Fourteen patients were placed on “quarters” for at least 24 and no more than 72 hours (10 of these patients were vaccinated). The specimens collected from patients placed on quarters were sub-typed as H3N2 (n=7) and H1N1 (n=1).

Influenza Overview

Geographic location. Influenza A (H3N2 and H1N1) has been the only influenza type identified in the Pacific Rim. Both influenza A and B have been identified in Europe and the Middle East and A/H3N2, A/H1N1, B/Hong Kong and B/Shanghai have been sub-typed from these isolates. Influenza B has been the only influenza type identified in both Central and South America, and both influenza B/Hong Kong and influenza B/Shanghai have been sub-typed. Although influenza A has been the primary isolate identified in CONUS sites, influenza B was recently isolated from two Air Force sites in Texas (Table 1).

Table 1. Influenza by SITE and REGION

Site by REGION	Sentinel Status	Influenza A			Influenza B			Total Influenza
		Not-subtyped	H3N2	H1N1	Not-subtyped	Hong Kong	Shanghai	
OCONUS								
Pacific Rim								
121st Army, S. Korea	Sentinel		3	3				6
Andersen AFB, Guam	Sentinel		3					3
Camp Zama, Japan	Sentinel		3					3
NH Okinawa, Japan	Sentinel		1					1
NH Yokosuka, Japan	Sentinel		3					3
Yokota AB, Japan	Sentinel		1					1
Misawa AB, Japan	Sentinel	1						1
Osan AB, S. Korea	Sentinel		2	3				5
Saipan, CMNI	Research lab		6	1				7
Europe								
Aviano AB, Italy	Sentinel		1					1
RAF Lakenheath, U.K.	Sentinel	4	1		5	3		13
Deployed								
Ali Al Salem AB, Kuwait	Sentinel		1					1
Al Udeid AB, Qatar	Sentinel			1				1
Camp Arifjan, Kuwait	Sentinel		1	1		1		3
Camp Buehring, Kuwait	Sentinel						1	1
Central America								
CHPPM-W, Honduras	Research lab				3		1	4
South America								
NMRC-D, Peru	Research lab				2	13	1	16
CONUS								
East North Central								
Scott AFB, IL	Sentinel	2	2					4
East South Central								
Maxwell AFB, AL	Non-Sentinel	3	1					4
New England								
Hanscom AFB, MA	Non-Sentinel	1						1
NHC New England, CT	Sentinel		1					1
Mid Atlantic								
McGuire AFB, NJ	Sentinel	2	3					5
Mountain								
USAF Academy, CO	Sentinel	17	21					38
Buckley AFB, CO	Non-Sentinel	2						2
Luke AFB, AZ	Non-Sentinel	2	3					5
Pacific								
CGS Ketchikan, AK	Sentinel		2					2
Elmendorf AFB, AK	Sentinel	1	2					3
NH Bremerton, WA	Sentinel	1						1
NMC San Diego, CA	Sentinel		1					1
Travis AFB, CA	Sentinel	2						2
Tripler AMC, HI	Sentinel		9					9
Edwards AFB, CA	Non-Sentinel		1					1
South Atlantic								
Andrews AFB, MD	Sentinel	2	2					4
NH Bethesda, MD	Sentinel	4	2					6
West South Central								
Sheppard AFB, TX	Sentinel	3	5					8
Brooks City-Base, TX	Non-Sentinel	5	4		1			10
Goodfellow AFB, TX	Non-Sentinel		1					1
Lackland AFB, TX	Non-Sentinel	2	9					11
Tinker AFB, OK	Non-Sentinel	5	5			1		11
Total Influenza		59	100	9	11	18	3	200

Area of Responsibility (AOR)

Note: Sentinel sites are distributed among the AOR as follows: 100% of submitting CENTCOM and EUCOM sites, 44% of the NORTHCOM sites, and 87% of the PACOM sites. The "OTHER" AOR category includes specimens collected from foreign nationals at the overseas research lab locations and are not considered sentinel sites.

Table 2. Laboratory Results by Area of Responsibility (AOR), Week 06 and Season Totals.

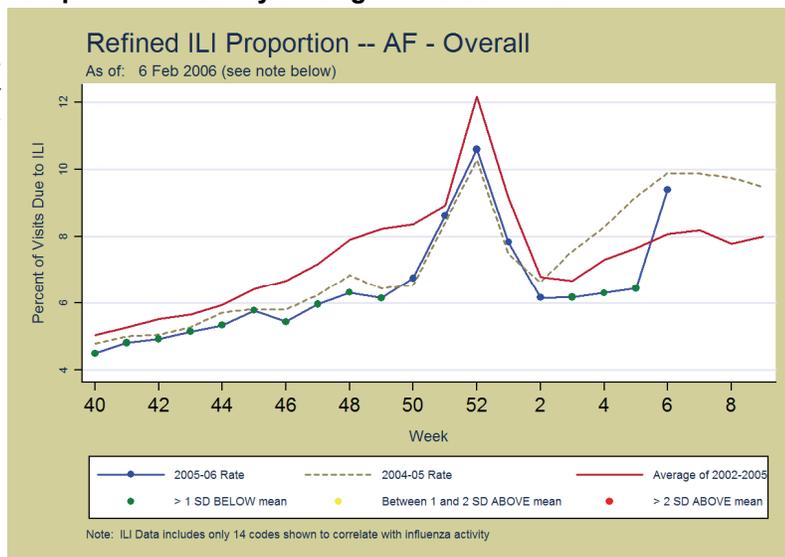
Result	Area of Responsibility										ALL SITES
	CENTCOM		EUCOM		NORTHCOM		PACOM		OTHER		
	Week	Season	Week	Season	Week	Season	Week	Season	Week	Season	
Influenza A		4	2	6	14	114		44			168
Influenza B		2	3	8		2				20	32
Adenovirus				3		26		5		4	38
Parainfluenza		1		9		27		3		3	43
Enterovirus		2		4		4		3		1	14
HSV		1		3				2		5	11
RSV						5		1			6
Negative		46		111		489		215		120	981
Pending			8	17	39	70	3	7	1	134	228
TOTAL RECEIVED	0	56	13	161	53	737	3	280	1	287	1521

Influenza-Like Illness (ILI)*

Overview. As of 06-Feb-06. Influenza-like illness (ILI) activity among Air Force MTFs has **increased to 9%** for Week 06, yet still below 1 standard deviation (SD) below the mean. The SD is calculated weekly. It is important to note that data may vary from next week's graph.

*Influenza-like illness (ILI) activity is gathered from the Standard Ambulatory Data Registry (SADR). The data are cleaned and a summary total of ICD-9's that match a smaller, but more specific and sensitive list of ICDs than is in the ESSENCE tool, are presented (Graph 3). The Surveillance Team at AFIOH are in the process of creating a DoD-wide ILI graph.

Graph 4. ILI Activity among Air Force MTFs



Additional Influenza Surveillance: Army MEDCENS

The Army performs influenza surveillance at 6 Army Medical Center (MEDCEN) locations (Dwight David Eisenhower Army Medical Center [DDEAMC], Walter Reed Army Medical Center [WRAMC], Brooke Army Medical Center [BAMC], Madigan Army Medical Center [MAMC], Tripler Army Medical Center [TAMC], and Landstuhl Regional Medical Center [LRMC]), two of which are included in AFIOH's sentinel site surveillance network (see map to right). *Any influenza positive specimen identified from TAMC or LRMC in the AFIOH portion of this report are also included in the "Army MEDCEN" report.*



The Army MEDCEN sites are major medical centers equipped with the capability of detecting respiratory viruses, including influenza. It is important to note that the methodology varies at each site (i.e., testing procedures include direct fluorescent-antibody [DFA], various rapid antigen tests, culture, and polymerase chain reaction [PCR]) and reporting is routine, but varies from site to site (i.e., weekly, bi-weekly, monthly). The information reported and shared with AFIOH describes results from the individual MEDCENS and does not include demographic information at this time.

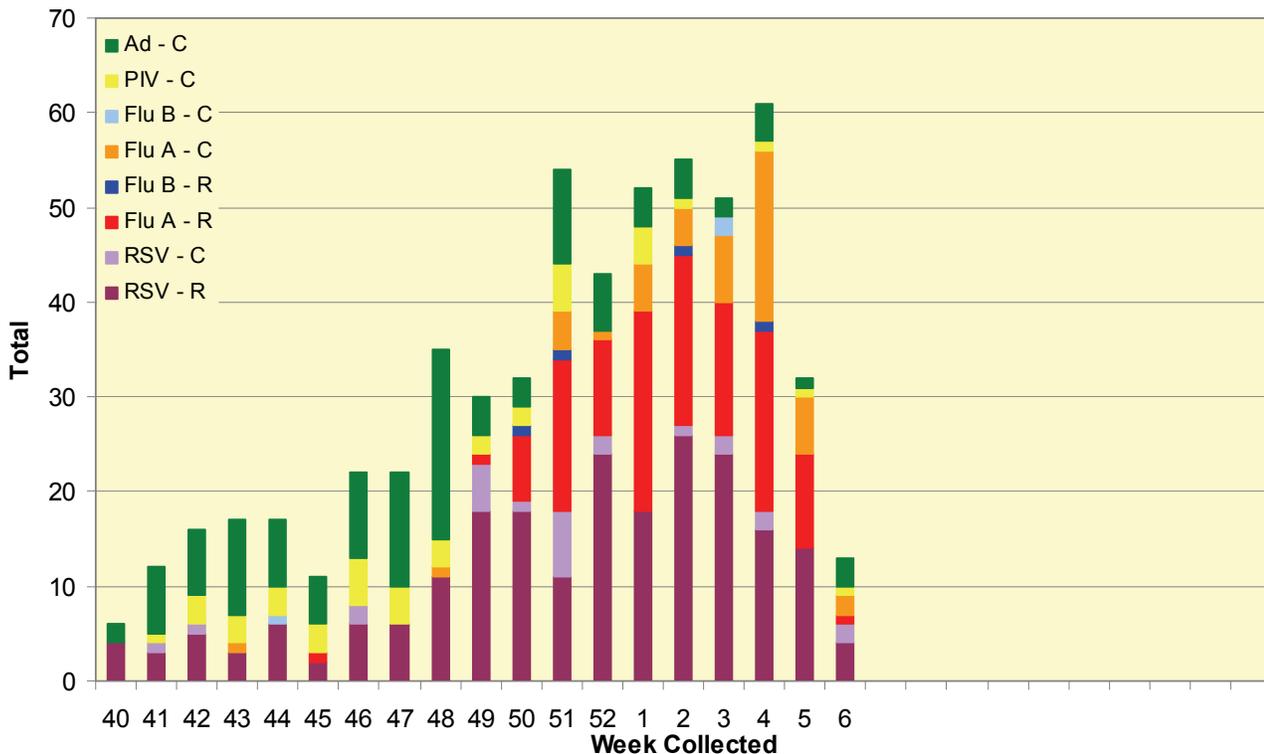
Season overview: Since 02 October 2005, **2,595** specimens were collected and tested. Seventy-eight percent (n=2,014) were negative and 22% (n=581) were positive for a respiratory virus (167 influenza A; 7 influenza B; 245 RSV; 42 parainfluenza; and 120 adenovirus). Of the specimens collected and tested, 7% were positive for an influenza virus (Graph 5.).

Duplicate data. At this time, 9 influenza A viruses are identified in both the AFIOH report and Army MEDCEN report. Both TAMC and LRMC send selected positive specimens to AFIOH for sub-typing. All 9 influenza isolates collected from Tripler AMC have been identified as A/H3N2.

POC for Army MEDCEN surveillance is MAJ Wade Aldous.

Graph 4. Number of Positive Respiratory Viruses, ARMY MEDCEN Weekly Report (as of 17 January 2006).

Graph 5. 2005-2006 ARMY MEDCEN Viral Respiratory Summary*

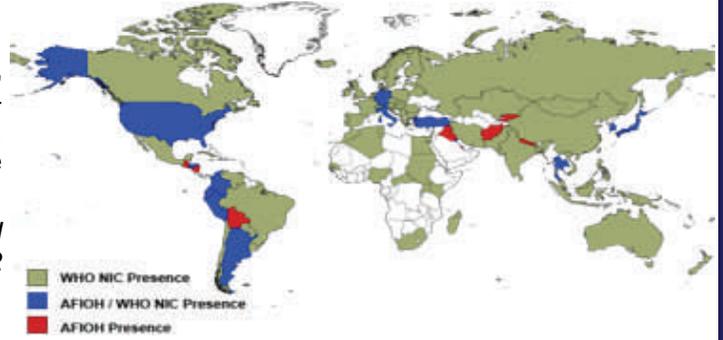


* C = Culture positive ; R = Rapid test positive

Contributions to National and Global Influenza Surveillance

It is important to note that although a country is highlighted, surveillance may be limited in scope. AFIOH provides surveillance data from 21 countries - 8 countries (Bolivia, El Salvador, Guatemala, Iraq, Kyrgyzstan, Nepal, Nicaragua, and Qatar) are not otherwise included in the current WHO network.

Note: Map describes countries submitting specimens to AFIOH and does not include all DoD contributing countries (i.e., NAMRU-2 and NAMRU-3 surveillance described on page 7).



Data Sharing

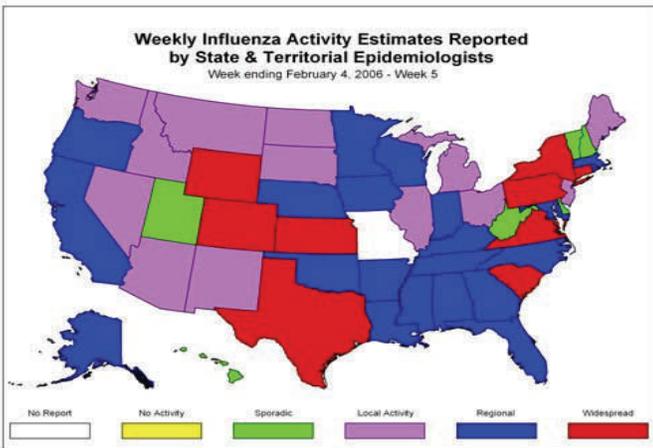
AFIOH electronically reports data to CDC using the Public Health Laboratory Information System (PHLIS). The data shared is incorporated into WHO's and CDC's influenza surveillance summaries. Additionally, data from Texas military sites are reported to the Texas Department of State Health Services (TDSHS).

CDC / WHO Influenza Surveillance

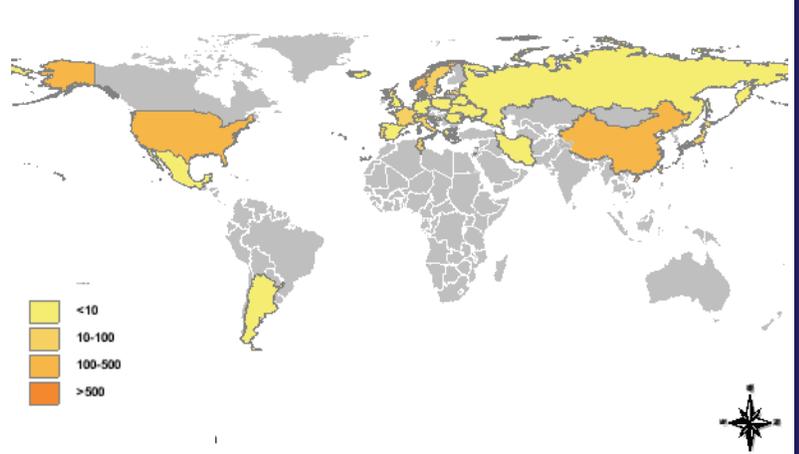
CDC reported influenza activity continuing at the same level as recent weeks during Week 05. Of the specimens tested, 13.9% were positive for an influenza virus (see CDC map below). Since 02 October 2005, a total of 7.2% of specimens have tested positive for influenza in the United States.

**WHO data may vary slightly from week to week. Please refer to [WHO's website](http://www.who.int) for detailed information regarding the WHO Influenza Surveillance data.

CDC U.S. Influenza Surveillance Map¹



WHO International Influenza Surveillance Map²



1. National Influenza Activity (CDC): <http://www.cdc.gov/ncidod/diseases/flu/weeklychoice.htm>
2. International Influenza Activity (WHO): <http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza Updates

Human Avian Influenza. 169 cases of lab-confirmed avian influenza (54% case fatality rate). The table was gathered from the [WHO website](http://www.who.int) on 14 February 2006 and has been updated as of 13 February 2006.

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Cambodia	0	0	0	0	4	4	0	0	4	4
China	0	0	0	0	8	5	4	3	12	8
Indonesia	0	0	0	0	17	11	8	7	25	18
Iraq	0	0	0	0	0	0	1	1	1	1
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	25	15	169	91

Total number of cases includes number of deaths.
WHO reports only laboratory-confirmed cases.

DoD Global Influenza Surveillance Program Background

DoD-GEIS Influenza Surveillance Network

The DoD Global Influenza Surveillance Program was established by the Global Emerging Infections Surveillance and Response System (GEIS) in 1997. The program established an influenza surveillance network, which includes the Air Force Influenza Surveillance Network (global influenza surveillance established in 1976), Navy (recruit adenovirus surveillance established in 1996), and the DoD overseas medical research facilities (i.e., the Naval Medical Research Unit located in Cairo, Egypt [NAMRU-3] and the Naval Medical Research Unit located in Jakarta, Indonesia [NAMRU-2]).

AFIOH Influenza Surveillance Network

In 1976, the US Air Force Medical Service began conducting routine lab-based surveillance of influenza throughout the world. Efforts were expanded when it became part of the DoD-GEIS influenza surveillance network in 1997. AFIOH manages the Air Force surveillance program that includes global influenza surveillance among DoD beneficiaries at 43 tri-service sentinel sites (including deployed locations in Iraq, Qatar, Kuwait, and Kyrgyzstan), several non-sentinel sites, two DoD overseas medical research laboratories (the Armed Forces Research Institute of Medical Sciences located in Bangkok, Thailand [AFRIMS], and the U.S. Naval Medical Research Center-Detachment [NMRC-D] located in Lima, Peru) that collect specimens from local residents in Nepal, Thailand, Argentina, Bolivia, Ecuador, Peru, and Colombia, and the US Army Center for Health Promotion and Preventive Medicine-West (CHPPM-W), that collect specimens from local residents in El Salvador, Guatemala, and Honduras.

Sentinel Site Surveillance

Sentinel site surveillance describes specimens submitted by the 43 sentinel sites using the protocol of collecting 6-10 specimens each week from patients meeting the ILI case definition (**fever $\geq 100.5^{\circ}F$ and cough or sore throat**) and completing the "Influenza Surveillance Questionnaire" (see [our website](#) to review the questionnaire and the Sentinel Site Surveillance Report). Two sentinel sites, Tripler Army Medical Center (AMC), located in Hawaii, and Landstuhl Regional Medical Center (RMC), located in Germany, send selected influenza positive specimens to AFIOH to be further characterized. These sites are major medical centers and have established laboratories capable of detecting influenza. Their involvement in the DoD-wide program is valued due to their mission and geographical location.

Processing Methods

Specimens are processed in BSL-2 conditions (BSL-3 available) and tested for influenza, parainfluenza, adenovirus, enterovirus, herpes simplex virus (HSV), and respiratory syncytial virus (RSV). Specimens are held up to 14 days before a negative result is given. All influenza isolates are typed as A or B and a portion are subtyped using hemagglutination-inhibition (HI) or polymerase chain reaction (PCR) procedures. A portion of these isolates undergo molecular sequencing.

2005-2006 Trivalent Influenza Vaccine Composition

Northern Hemisphere

- A/New Caledonia/20/99-like (H1N1)
- A/California/7/2004-like (H3N2)
- B/Shanghai/361/2002-like

2006 Southern Hemisphere

- A/New Caledonia/20/99-like (H1N1)
- A/California/7/2004-like (H3N2)*
- B/Malaysia/2506/2004

*The currently used vaccine virus is A/New York/55/2004

This report was prepared on **14 February 2006**. For an expanded view of the information in this report, visit our website at <https://gumbo.brooks.af.mil/pestilence/Influenza/>. Also available on our website is a list of previous weekly surveillance reports, program information for sentinel sites (including an educational briefing and instruction pamphlets for clinic staff), and an overview of historical data.

Please visit the [DoD-GEIS website](#) for an overview of influenza surveillance at all collaborating DoD-GEIS organizations.

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